

APPENDIX A.3

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Arctic Shrew

Level III

Scientific Name: *Sorex arcticus*

General Description: A medium sized shrew, 4 inches in length with the tail approximately one third of the total length. The pelage is tri-colored with a dark brown to black back. Brown sides, and light brown to gray venter. The top side of the tail is darker then the underside.

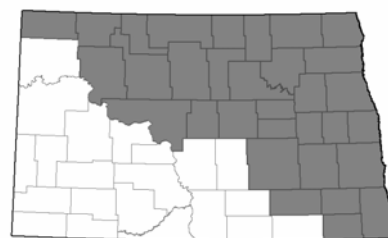
Status: Year-round resident.

Abundance: Uncommon.

Primary Habitat: This species is associated with grass-sedge marshes and wet meadows in North Dakota.

Federal Status: None.

Reason for Designation: The status of this small, secretive mammal is relatively unknown within North Dakota. There are concerns that it may be threatened in the southern part of its range. Information needs to be gathered to assess its condition.



LOCATIONS AND CONDITIONS OF KEY HABITAT

Preferred Habitat

Found in counties along the Canadian border and extending down into the eastern third of the state. A boreal forest species in the northern latitude it is associated with grass-sedge marshes and wet meadows in North Dakota. This species is associated with mesic habitats in other parts of its range.

Key Areas for Arctic Shrew in North Dakota

No specific areas have been identified. The eastern half of the state does offer the most potential habitat for this species. Also the Turtle Mountains and the Pembina Gorge have habitat similar to the types of lands that this species inhabits in the northern reaches of its range.

PROBLEMS WHICH MAY AFFECT THIS SPECIES

Habitat

The draining of wetlands would pose the largest threat to the types of habitat preferred by the arctic shrew. The loss of surrounding vegetation and associated uplands to conversion would also impact this species.

Other Natural or Manmade Factors

The use of pesticides on agricultural land in is a threat due to the impact on the shrew's food base.

RESEARCH AND SURVEY EFFORTS

Current Research and Survey Efforts

- Small mammal surveys are conducted by a number of entities within the range of the arctic shrew.
- No specific research targeting the arctic shrew is in progress.

Previous Research and Survey Efforts

- Baird et al. (1983) studied reproduction in the state.
- Iverson et al. (1967) documented arctic shrew distribution in the prairie-forest transition zone.

Arctic Shrew

Level III

- A species account for the arctic shrew was compiled in 1996.

Additional Research and Survey Efforts Needed

- Develop a protocol to monitor small mammals within the state on a long-term basis.

MANAGEMENT RECOMMENDATIONS

Direct Loss of Habitat

- Protect native prairie where possible.
- Work with city planners to conserve existing native prairie.

Habitat Fragmentation

- Consider removal of dilapidated shelterbelts or stands of trees within grassland, particularly within 50 meters of grassland patches >100 ha.

Habitat Degradation

- Implement grazing systems to benefit grassland species.
- Work cooperatively with state and federal agencies to develop BMP's that promote use of fire.

Invasive and Noxious Species

- Control noxious weeds through biological and chemical methods.
- Use fire or other tools to prevent woody invasion of grassland.

Pesticides

- Work with state and federal agencies to enforce existing pesticide regulations.

Industrial Development

- Coordinate with wind energy companies to minimize impacts.

Data Gaps

- Survey areas of data gaps. Conduct research/surveys to establish baseline information on SoCP.

MONITORING PLANS

- No monitoring plan has yet been developed for small mammals within the state.

REFERENCES

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Arctic Shrew

Level III

Wilson, Don E., Sue Ruff. 1999. *The Smithsonian Book of North American Mammals*. Smithsonian Institution Press. Washington and London. 750pp.

Pygmy Shrew

Level II

Scientific Name: *Sorex hoyi*

General Description: North Dakota's smallest mammal. Four inches in length, of which one third is tail. It has a reddish brown to gray coat with an underside somewhat lighter. The tail is dark brown on top and lighter underneath. Pygmy shrews have small black eyes and stiff hairs called vibrissae along their nose.

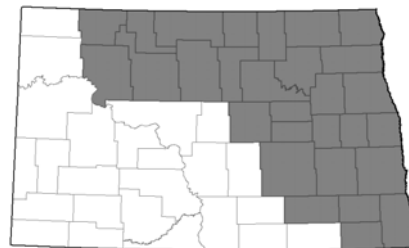
Status: Year-round resident.

Abundance: Common.

Primary Habitat: Although seeming to prefer forested areas, pygmy shrews are adaptable and are found in many habitat types.

Federal Status: None.

Reason for Designation: Little is known about this tiny mammal with in the state. Although it is common in North Dakota, its population is considered vulnerable in this part of the country.



LOCATIONS AND CONDITIONS OF KEY HABITAT

Preferred Habitat

Range-wide, pygmy shrew occupy numerous habitat types, including mesic mountainous areas, dry sandy ridges, forests and woodlands, grazed pastures, sagebrush grasslands, lowland marshes, and edges of sphagnum bogs. In this region they seem to favor moist areas and riparian woodlands associated with mixed and tall grass prairies.

Key Areas for Pygmy Shrew in North Dakota

Forested areas in the Turtle Mountains and Pembina Gorge. Wetland complexes of Ransom and Benson counties have known populations.

PROBLEMS WHICH MAY AFFECT THIS SPECIES

Habitat

The conversion of native grasslands, wetlands, and riparian areas for agriculture and development is a major threat facing this species.

Other Natural or Manmade Factors

Use of pesticides on agricultural lands may threaten this species' food base.

RESEARCH AND SURVEY EFFORTS

Current Research and Survey Efforts

- Currently there is no research or survey effort in progress.

Previous Research and Survey Efforts

- A survey and relationship study of wetlands in the pygmy shrew range was conducted by the USFWS (1989).

Pygmy Shrew

Level II

Additional Research and Survey Efforts Needed

- Develop a monitoring protocol for small mammals in North Dakota.

MANAGEMENT RECOMMENDATIONS

Direct Loss of Habitat

- Protect native prairie where possible.
- Work with city planners to conserve existing native prairie.

Habitat Fragmentation

- Consider removal of dilapidated shelterbelts or stands of trees within grassland, particularly within 50 meters of grassland patches >100 ha.

Habitat Degradation

- Implement grazing systems to benefit grassland species.
- Work cooperatively with state and federal agencies to develop BMP's that promote use of fire.

Invasive and Noxious Species

- Control noxious weeds through biological and chemical methods.
- Use fire or other tools to prevent woody invasion of grassland.

Pesticides

- Work with state and federal agencies to enforce existing pesticide regulations.

Industrial Development

- Coordinate with wind energy companies to minimize impacts.

Data Gaps

- Survey areas of data gaps. Conduct research/surveys to establish baseline information on SoCP.

MONITORING PLANS

- No monitoring protocol has yet been identified for this species.

REFERENCES

- Anonymous, 1998. *Rare North Dakota animals: North Dakota Natural Heritage Inventory*. USDA Forest Service. 30 pp.
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- Wilson, Don E., Sue Ruff. 1999. *The Smithsonian Book of North American Mammals*. Smithsonian Institution Press. Washington and London. 750pp.

Western Small-footed Myotis

Level III

Scientific Name: *Myotis ciliolabrum*

General Description: 4 inches from nose to tail and weighing .1-.2 ounces. Its pelage is pale yellowish brown and its ears and wing membranes are black. A black band of hair runs across both eyes, giving the appearance of a mask.

Status: Possibly year-round, may migrate short distances to hibernate.

Abundance: Rare.

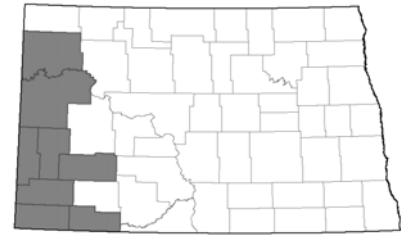
Primary Habitat: Found in extreme western North Dakota. Normally found in rugged terrain they roost alone or in small groups in rock crevices and under tree bark. This species has a strong association with coniferous trees.

Federal Status: Currently no federal status was once as Candidate 2 species.

Reason for Designation: Little is known about this species in North Dakota. Although rare to the state there are some indications that it is declining range wide.



Merlin Tuttle



LOCATIONS AND CONDITIONS OF KEY HABITAT

Preferred Habitat

Western small-footed myotis are found in areas with rock cliffs, clay buttes and steep slopes. Conifer trees are also associated with this species. Deep crevices are needed for hibernation.

Key Areas for Western Small-footed Myotis in North Dakota

Present only in North Dakota's badlands. No specific key areas have been identified for this species.

PROBLEMS WHICH MAY AFFECT THIS SPECIES

Habitat

This and other bats in the state rely on caves and crevices as hibernacula and maternal roosts. These sites are susceptible to human and other types of disturbance. Frequent disturbance may cause abandonment or females to drop young in the rearing process.

Other Natural or Manmade Factors

- Western small-footed myotis and other North Dakota bat species are insectivores. The use of pesticides in the vicinity of a feeding ground would effect myotis populations by killing prey. Also, myotis species are known to store pesticides within fat reserves.
- Loss of water sources is also a potential threat to this species. This region of North Dakota is experiencing drought. When natural water sources are dry, bats may resort to drinking from stock tanks, which can potentially trap bats.
- Wind turbines have been identified as a source of mortality to bats and several turbine "farms" are under construction in parts of North Dakota.

Western Small-footed Myotis

Level III

- Indiscriminate killing due to a negative public perception has been identified as a possible threat to this species.

RESEARCH AND SURVEY EFFORTS

Current Research and Survey Efforts

- Currently there is no research on bats on-going in the state.

Previous Research and Survey Efforts

- Northern Prairie Wildlife Research Center is in the process of identifying previous work for mammals of southwestern North Dakota.
- A number of agencies have surveyed small mammals in the southwestern part of the state, including REAP, Theodore Roosevelt National Park, the U.S. Forest Service, and U.S. Bureau of Land Management.

Additional Research and Survey Efforts Needed

- Survey to determine population status of Western small-footed Myotis in North Dakota.
- Research to assess primary threats to this species.
- Develop monitoring protocol for bats in the state.

MANAGEMENT RECOMMENDATIONS

- Protection and restoration of riparian habitat.
- Manage riparian habitats to maintain snags, connecting corridors, and edges.
- Maintain and improve seeps, ponds, and other wet areas as water sources.
- Education on the benefits and misconceptions about bats.
- Determine and protect nursery and hibernation sites.
- Protect and maintain identified roost sites.
- Provide roosting sites in areas where natural sites have been destroyed or disturbed.
- Reduce use of pesticides near waterways where bats forage.

MONITORING PLANS

- No monitoring protocol has been identified at this time.

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- Anonymous, 1998. *Rare North Dakota animals: North Dakota Natural Heritage Inventory*. USDA Forest Service. 30 pp.
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Western Small-footed Myotis

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- Wilson, Don E., Sue Ruff. 1999. *The Smithsonian Book of North American Mammals*. Smithsonian Institution Press. Washington and London. 750 pp.

Long-eared Myotis

Level III

Scientific Name: *Myotis evotis*

General Description: Large bat, 3 to 4 inches in length. Its fur can range from a dark brown to pale yellow. Most striking feature is its large, hairless, black ears that extend well above its head. Lacks hair on the fringe of uropatagium.

Status: Possible year-round resident. May migrate short distances to find suitable hibernacula in winter.

Abundance: rare.

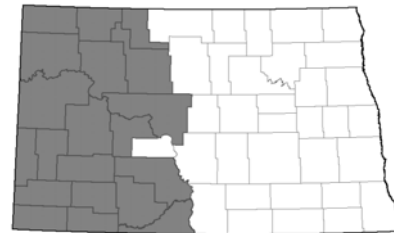
Primary Habitat: Found in extreme western North Dakota. Normally found in rugged terrain they roost alone or in small groups in rock crevices and under tree bark. This species has a strong association with coniferous trees. Hibernates in caves and abandoned mines.

Federal Status: No current listing; once a Candidate 2 species.

Reason for Designation: Little is known about this species in North Dakota. Although rare to the state there are some indications that it is declining range-wide.



Merlin Tuttle



LOCATIONS AND CONDITIONS OF KEY HABITAT

Preferred Habitat

Found in western North Dakota's badlands. Prefers broken rock outcrops and cliffs for roosting sites. Associated with conifer stands, but may use deciduous stands and sagebrush flats if roosting sites are available.

Key Areas for Long-eared Myotis in North Dakota

The ponderosa pines of the badlands are identified as a key area for this species.

PROBLEMS WHICH MAY AFFECT THIS SPECIES

Habitat

This and other bat species in the state rely on caves and crevices for hibernacula and maternal grounds. These sites are susceptible to human and other types of disturbance. Frequent disturbance may cause females to drop young in the rearing process or abandon the area.

Other Natural or Manmade Factors

Long-eared myotis and other bats in North Dakota are insectivores. Pesticides used in the vicinity of feeding grounds would effect bat populations by killing prey. Also, bats are known to store pesticides within fat reserves.

Loss of water sources for drinking is also a potential threat. Western North Dakota is experiencing drought. When natural water sources are dry, bats may resort to drinking from stock tanks. These can be potential bat traps.

- Wind turbines have been identified as a source of mortality to bats and several turbine "farms" are under construction in parts of North Dakota.

Long-eared Myotis

Level III

Indiscriminate killing due to a negative public perception has been identified as a possible threat to this species.

RESEARCH AND SURVEY EFFORTS

Current Research and Survey Efforts

- Currently there is no research on bats within the state.

Previous Research and Survey Efforts

- A number of agencies have surveyed for small mammals in the southwestern part of the state including, REAP, Theodore Roosevelt National Park, the U.S. Forest Service, and U.S. Bureau of Land Management.

Additional Research and Survey Efforts Needed

- Survey to determine which bat species are declining in North Dakota.
- Research to assess primary threats to this species.
- Develop monitoring protocol for bats in the state.

MANAGEMENT RECOMMENDATIONS

- Protection and restoration of riparian habitat
- Manage riparian habitats to maintain snags, connecting corridors, and edges.
- Maintain and improve seeps, ponds, and other wet areas as water sources.
- Education on the benefits and misconceptions about bats.
- Determine and protect nursery and hibernation sites.
- Protect and maintain identified roost sites.
- Provide roosting sites in areas where natural sites have been destroyed or disturbed.
- Reduce use of pesticides near waterways where bats forage.

MONITORING PLANS

- No monitoring protocol has been identified at this time.

REFERENCES

- Anonymous, 1998. *Rare North Dakota animals: North Dakota Natural Heritage Inventory*. USDA Forest Service. 30 pp.
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Long-eared Myotis

Level III

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Wilson, Don E., Sue Ruff. 1999. *The Smithsonian Book of North American Mammals*. Smithsonian Institution Press. Washington and London. 750 pp.

Long-legged Myotis

Level III

Scientific Name: *Myotis volans*

General Description: A large western bat growing to 4 inches with a wingspan of 10-12 inches. Pelage is dark brown and extends out along the underside of the wings. Wings and short, round ears are black.

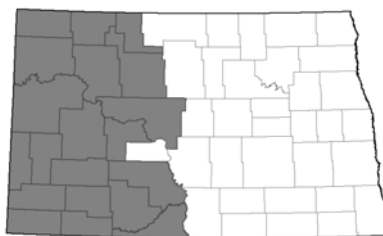
Status: Possibly year-round resident. May migrate short distances to find winter hibernacula.

Abundance: Rare.

Primary Habitat: Found in extreme western North Dakota. Normally found in rugged terrain, they roost alone or in small groups in rock crevices and under tree bark. This species has a strong association with coniferous trees.

Federal Status: No current status. Once a candidate 2 species.

Reason for Designation: Little is known about this species in North Dakota. Although rare to the state, there are indications it is declining range wide.



LOCATIONS AND CONDITIONS OF KEY HABITAT

Preferred Habitat

This species is found mostly in close relation to conifer stands. Uses tree snags, crevices, buildings and cliffs for roosting.

Key Areas for Long-legged Myotis in North Dakota

The ponderosa pine area of the badlands has been identified as a key area for the long-legged myotis.

PROBLEMS WHICH MAY AFFECT THIS SPECIES

Habitat

This and other bat species in the state rely on caves and crevices for hibernacula and maternal grounds. These sites are susceptible to human and other types of disturbance. Frequent disturbance may cause females to drop young in the rearing process or abandon the area.

Other Natural or Manmade Factors

- Long-legged myotis and other bats in North Dakota are insectivores. Pesticides used in the vicinity of feeding grounds would effect bat populations by killing prey. Also, bats are known to store pesticides within fat reserves.
- Loss of water sources for drinking is also a potential threat. Western North Dakota is experiencing drought. When natural water sources are dry, bats may resort to drinking from stock tanks. These can be potential bat traps.
- Wind turbines have been identified as a source of mortality to bats and several turbine "farms" are under construction in parts of North Dakota.
- Indiscriminate killing due to a negative public perception has been identified as a possible threat to this species.

Long-legged Myotis

Level III

RESEARCH AND SURVEY EFFORTS

Current Research and Survey Efforts

- Currently there is no research in progress on bats in the state.

Previous Research and Survey Efforts

- Northern Prairie Wildlife Research Center is in the process of identifying previous work for mammals in North Dakota.
- A number of agencies have surveyed for small mammals in the southwestern part of the state, including REAP, Theodore Roosevelt National Park, the U.S. Forest Service, and U.S. Bureau of Land Management.

Additional Research and Survey Efforts Needed

- Survey to determine which species are declining in North Dakota.
- Research to assess primary threats within the state.
- Develop monitoring protocol for bats in the state.

MANAGEMENT RECOMMENDATIONS

- Protection and restoration of riparian habitat
- Manage riparian habitats to maintain snags, connecting corridors and edges.
- Maintain and improve seeps, ponds, and other wet areas as water sources.
- Education on the benefits and misconceptions about bats.
- Determine and protect nursery and hibernation sites.
- Protect and maintain identified roost sights.
- Provide roosting sites in areas where natural sites have been destroyed or disturbed.
- Reduce use of pesticides near waterways where bats forage.

MONITORING PLANS

- No monitoring protocol has been identified at this time.

REFERENCES

- Anonymous, 1998. *Rare North Dakota animals: North Dakota Natural Heritage Inventory*. USDA Forest Service. 30 pp.
- Gullickson, Greg. No Date. Bats of North Dakota. North Dakota Game and Fish Department, Bismarck, ND. 19 pp.
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Long-legged Myotis

Level III

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- Wilson, Don E., Sue Ruff. 1999. *The Smithsonian Book of North American Mammals*. Smithsonian Institution Press. Washington and London. 750 pp.

Hispid Pocket Mouse

Level III

Scientific Name: *Chaetodipus hispidus*

General Description: A medium sized mouse with large back feet, whose tail is roughly the same length as its body. The fur on its back is a mix of black and tan with an orange stripe separating it from the white belly.

Status: year-round resident.

Abundance: Locally common.

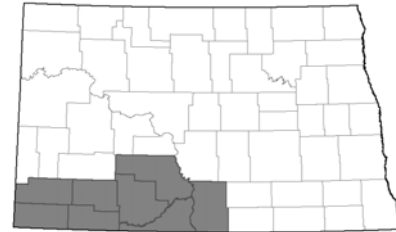
Primary Habitat: Short and mixed-grass prairie tracts. Found predominantly in southern North Dakota west of the Missouri River.

Federal Status: No current federal status.

Reason for Designation: Little is known of the habits and status of this rodent. Only small pockets of this species' habitat occur within the state, and loss of native prairie is a concern. North Dakota is considered at the northern edge of the hispid pocket mouse range.



Bob Grass



LOCATIONS AND CONDITIONS OF KEY HABITAT

Preferred Habitat

Hispid pocket mice prefer short and mixed-grass prairie tracts. Predominantly grainivores, they eat seeds from native grasses for food, and may also feed in grain fields.

Key Areas for Hispid Pocket Mouse in North Dakota

No key areas have been identified for this species.

PROBLEMS WHICH MAY AFFECT THIS SPECIES

Habitat

Conversion of native and tame grass tracts from grazing and hay land to crop land is the greatest threat for this rodent. This action reduces food sources and removes critical cover for nesting and protection.

Other Natural or Manmade Factors

Disease may be factor for this species.

RESEARCH AND SURVEY EFFORTS

Current Research and Survey Efforts

- No research is presently in progress on this species.
- Northern Prairie Wildlife Research Center has developed an annotated bibliography for mammals in North Dakota.

Previous Research and Survey Efforts

- A number of agencies have surveyed for small mammals in the southwestern part of the state, including REAP, Theodore Roosevelt National Park, the U.S. Forest Service, and U.S. Bureau of Land Management.

Hispid Pocket Mouse

Level III

Additional Research and Survey Efforts Needed

- All aspects of this species ecology need to be examined, including abundance, reproduction, habitat requirements, and threats.
- Develop a monitoring protocol for small mammals in North Dakota.

MANAGEMENT RECOMMENDATIONS

Direct Loss of Habitat

- Protect native prairie where possible.
- Work with city planners to conserve existing native prairie.

Habitat Fragmentation

- Consider removal of dilapidated shelterbelts or stands of trees within grassland, particularly within 50 meters of grassland patches >100 ha.

Habitat Degradation

- Implement grazing systems to benefit grassland species.
- Work cooperatively with state and federal agencies to develop BMP's that promote use of fire.

Invasive and Noxious Species

- Control noxious weeds through biological and chemical methods.
- Use fire or other tools to prevent woody invasion of grassland.

Pesticides

- Work with state and federal agencies to enforce existing pesticide regulations.

Industrial Development

- Coordinate with wind energy companies to minimize impacts.

Data Gaps

- Survey areas of data gaps. Conduct research/surveys to establish baseline information on SoCP.

MONITORING PLANS

- No monitoring plan has yet been developed.

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Hispid Pocket Mouse

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Plains Pocket Mouse

Level III

Scientific Name: *Perognathus flavescens*

General Description: A medium-sized mouse of 5 inches in length, including tail. Its tail is roughly the same length as its body and has pale black stripe on top. Its fur is a buff gray on top with a lighter underside. A distinct light patch is visible behind each ear. Its hind feet are distinctly larger than its front feet.

Status: year-round resident.

Abundance: Rare.

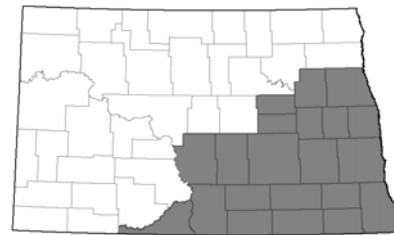
Primary Habitat: Found in southeastern North Dakota in areas with exposed sand dunes or sandy soils covered with grass. Can also be found feeding in crop fields.

Federal Status: No federal status.

Reason for Designation: Little is known of the habits and status of this rodent. Only small pockets of this species' habitat occur within the state.



Vladimir Dinets



LOCATIONS AND CONDITIONS OF KEY HABITAT

Preferred Habitat

Found in prairie tracts with sand dunes or stabilized sandy soils. Plains pocket mice dig their burrows in loose soils under vegetation. Burrows consist of one tunnel with expanded areas to store seeds. May also be found feeding in grain fields.

Key Areas for Plains Pocket Mice in North Dakota

Plains pocket mice are confined to the southeast part of North Dakota. Part of the Sheyenne National Grasslands in Ransom County contains Plains pocket mouse habitat.

PROBLEMS WHICH MAY AFFECT THIS SPECIES

Habitat

Conversion of sandy soil habitat for agricultural use is the greatest threat to this species. Already rare, the loss of remaining sandy soil habitat would be detrimental to the Plains pocket mouse.

Other Natural or Manmade Factors

Herbicide and pesticide use on agricultural land may be a threat to this species.

RESEARCH AND SURVEY EFFORTS

Current Research and Survey Efforts

- The University of North Dakota is conducting diversity and abundance work of terrestrial vertebrates in tall grass prairies.

Previous Research and Survey Efforts

- Small mammal inventories have been conducted on Sand Lake NWR, Sheyenne National Grasslands, and Tewaukon NWR.

Additional Research and Survey Efforts Needed

- Information on all aspects of this species' ecology needs to be examined, including abundance, reproduction, habitat requirements and threats.
- Document remaining sand dune habitat used by this species.

Plains Pocket Mouse

Level III

- Develop a monitoring protocol for small mammals.

MANAGEMENT RECOMMENDATIONS

Direct Loss of Habitat

- Protect native prairie where possible.
- Work with city planners to conserve existing native prairie.

Habitat Fragmentation

- Consider removal of dilapidated shelterbelts or stands of trees within grassland, particularly within 50 meters of grassland patches >100 ha.

Habitat Degradation

- Implement grazing systems to benefit grassland species.
- Work cooperatively with state and federal agencies to develop BMP's that promote use of fire.

Invasive and Noxious Species

- Control noxious weeds through biological and chemical methods.
- Use fire or other tools to prevent woody invasion of grassland.

Pesticides

- Work with state and federal agencies to enforce existing pesticide regulations.

Industrial Development

- Coordinate with wind energy companies to minimize impacts.

Data Gaps

- Survey areas of data gaps. Conduct research/surveys to establish baseline information on SoCP.

Conservation Awareness

- Education. Create informational brochures, use tools such as television, radio, newspapers, magazines, and public forums, to educate the public on the need for conservation of fish and wildlife resources and habitat.

MONITORING PLANS

- No monitoring protocol has yet been developed for this species

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Plains Pocket Mouse

Level III

Seabloom, R. W., R.D. Crawford, and M.G. McKenna. 1978. *Vertebrates of southwestern North Dakota: amphibians, reptiles, birds, mammals*. Institute for Ecological Studies, University of North Dakota. Grand Forks, North Dakota. 549 pp.

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Sagebrush Vole

Level III

Scientific Name: *Lemmyscus curtatus*

General Description: This rodent has a gray, bushy coat, small rounded ears and a very short tail. Unlike other voles it is usually found living in small colonies consisting of shallow burrows.

Status: Year-round resident.

Abundance: Rare.

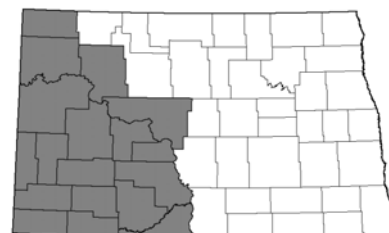
Primary Habitat: Semi-arid areas with loose soil; usually a combination of grass and sagebrush.

Federal Status: None.

Reason for Designation: Sagebrush habitat this species inhabits is threatened by conversion and many other land use practices.



Vladimir Dineits



LOCATIONS AND CONDITIONS OF KEY HABITAT

Preferred Habitat

Found in semi arid lands. Soil normally loose and well drained. Vegetation is normally sagebrush or rabbit brush with a grass component.

Key Areas for Sagebrush Voles in North Dakota

Sagebrush voles are found in southwestern North Dakota. Specific areas of focus have yet to be identified. Mapping of sagebrush habitat is in progress. This will narrow the focus areas for this species.

PROBLEMS WHICH MAY AFFECT THIS SPECIES

Habitat

The health of North Dakota sagebrush habitat is the greatest concern for this species. Much of the states sagebrush habitat has been disturbed and is in poor condition.

Other Natural or Manmade Factors

No problems have yet been identified for this species.

RESEARCH AND SURVEY EFFORTS

Current Research and Survey Efforts

- There is currently no research specifically targeting the sagebrush vole.
- Northern Prairie Wildlife Research Center has developed an annotated bibliography for mammals of North Dakota.
- Rick Sweitzer of the University of North Dakota is currently revisiting the REAP sites in the Little Missouri National Grasslands.

Previous Research and Survey Efforts

- No previous research or surveys have been identified for this species.

Sagebrush Vole

Level III

Additional Research and Survey Efforts Needed

- Research and survey efforts are needed to identify target areas and possible threats for this species.
- Develop a monitoring protocol for this species.

MANAGEMENT RECOMMENDATIONS

Direct Loss of Habitat

- Work with county zoning planning officials to designate areas in need of protective covenants.
- Work with partners to implement easements or land acquisition.

Habitat Fragmentation

- Become directly involved with the USFS trail development planning process.
- Communicate with the oil industry to minimize road impacts.

Habitat Degradation

- Implement grazing systems to benefit shortgrass prairie residual cover, forb species, and woody draws (i.e. participate in revision of USFS Allotment Management Plans or AMP's).
- Control noxious weeds through biological and chemical methods.

Industrial Development

- Coordinate with wind energy companies to minimize impacts.
- Look to exchange and consolidate mineral rights, particularly within focus areas.
- Continue to provide public land management agencies with mitigation recommendations in respect to species of concern.
- Coordinate with CBM companies to minimize efforts.

Other Impacts

- Work to minimize additional trail development on public lands.

Data Gaps

- Survey areas of data gaps. Conduct research/surveys to establish baseline information on SoCP.

MONITORING PLANS

- No monitoring plan for this species has been developed.

REFERENCES

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Black-tailed Prairie Dog

Level I

Scientific Name: *Cynomys ludovicianus*

General Description: North Dakota's largest ground squirrel, it is yellowish tan on its back and lighter on the belly. It has a short tail with a black tip. Found in colonies of many individuals.

Status: Year-round resident.

Abundance: Locally common.

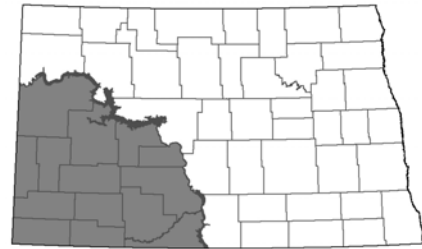
Primary Habitat: Short and mixed grasslands, usually well grazed lands.

Federal Status: Warrants listing but precluded (Feb. 4, 2000). Removed from the candidate list in 2004.

Reason for Designation: Black-tailed prairie dog habitat has been reduced to 1% of its historic amount. The combination of grassland conversion and concentrated poisoning are the main causes of their population decline. Numerous grassland species depend on black-tailed prairie dogs for habitat and food, including other species of conservation priority such as burrowing owl and the ferruginous hawk.



Sandra Hagen



LOCATIONS AND CONDITIONS OF KEY HABITAT

Preferred Habitat

Black-tailed prairie dogs are confined to prairie communities with short vegetation and relatively flat topography. They are often found in relation to areas grazed by livestock. Black-tailed Prairie Dogs live in large colonies known as "towns."

Key Areas for Black-tailed Prairie Dogs in North Dakota

Black-tailed Prairie Dogs occur in two distinct population complexes in ND; the Little Missouri National Grasslands complex and the Standing Rock complex which includes Sioux County. and portions of Grant and Morton Counties.

PROBLEMS WHICH MAY AFFECT THIS SPECIES

Habitat

Loss of suitable black-tailed prairie dog habitat is a major problem. Habitat loss is attributed to conversion of grassland to agricultural land. Historically, black-tailed prairie dog range encompassed 12 million acres, of which 10% was occupied at any one time. The most recent survey estimated the North Dakota acreage at 20,000.

Other Natural or Manmade Factors

Poisoning of black-tailed prairie dog colonies has resulted in loss of population. Poisoning is legal on private land in North Dakota. Many types of poisons are used, but zinc phosphide is the most common. Although poisoning of prairie dogs is illegal on public lands, a recent study indicates that it does occur.

RESEARCH AND SURVEY EFFORTS

Current Research

- Black-tailed prairie dog colonies are surveyed every three years by the North Dakota Game and Fish Department to estimated population status.

Black-tailed Prairie Dog

Level I

- The U. S. Forest Service Dakota Prairie Grasslands office also conducts surveys on Forest Service land in its region.

Previous Research

- Reid documented the distribution of black-tailed prairie dogs in southwestern North Dakota in 1954.
- A status of the black-tailed prairie dog and black-footed ferret was conducted by Grondahl in 1973.
- Bishop and Culbertson studied prairie dog town declines in southwestern North Dakota in 1976.
- John Sidle conducted aerial surveys in 2001 to estimate black-tailed prairie dog acreages in North Dakota.
- A black-tailed prairie dog population viability assessment was performed by Knowles in 2001.
- Knowles also completed a status of the black-tailed prairie dog in 2003.
- Black-tailed prairie dog colony expansion was studied by Milne in 2002-03.

Additional Research Needed

- Evaluate changes in distribution and population densities at sites prior to, during, and after oil and gas development.
- Determine the effects of fragmentation and development of barriers due to urbanization and agricultural development on dispersal and maintenance of colonies.
- Determine the effects of timing and intensity of grazing regimes on the use of habitats by BTPDs.

MANAGEMENT RECOMMENDATIONS

- Work with private landowners to develop grazing management practices that consider the season, duration, distribution, frequency, and intensity of grazing use on areas to maintain vegetation on both upland and riparian sites.
- Where appropriate, incorporate the use of mechanical, chemical, and biological methods of weed control to manage noxious weeds.
- Work with private landowner to incorporate prescribed land treatments into livestock management practices to develop sustainability of biological diversity.
- Monitor the effects of shooting. The NDGFD has the authority to place restrictions on shooting if necessary.

MONITORING PLANS

- A monitoring effort with a 3 year interval will be used. This will estimate acreages for known colonies, but will also actively search for new colonies. A monitoring effort such as this should be able to document loss of previously utilized acres due to conversion and population loss due to poisoning.
- Monitor populations for growth or loss.
- Work to link subpopulations with each distinct complex.
- Maintain isolated colonies (those > 5 miles from nearest colony).

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Black-tailed Prairie Dog

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Richardson's Ground Squirrel

Level II

Scientific Name: *Spermophilus richardsonii*

General Description: Large colony-dwelling ground squirrel. Pelage is a mixture of buff and black hair on the back with a tan belly.

Status: year-round resident.

Abundance: Common.

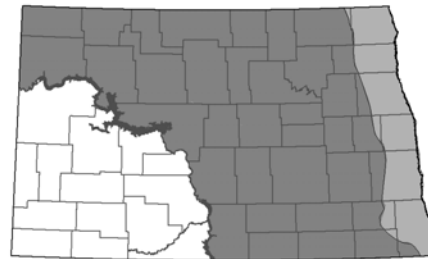
Primary Habitat: Prefers native mixed-grass prairie. Commonly found in areas that are heavily grazed.

Federal Status: None.

Reason for Designation: The Richardson's ground squirrel serves much the same role as the black-tailed prairie dog does in the western half of the state. Many species, including other species of conservation priority rely on Richardson's ground squirrels for food and shelter. There is some indication of a decline within the state. This, coupled with a lack of information on the species, makes them a conservation priority.



Craig Bihrie



LOCATIONS AND CONDITIONS OF KEY HABITAT

Preferred Habitat

A colonial species, Richardson's ground squirrels prefer intact blocks of rangeland. Well grazed pastures of native or tame grass in areas of sandy loam or gravelly soils offer the best conditions for burrowing. Areas near agricultural fields are also preferred, as cereal grain is used as a food source.

Key Areas for Richardson's Ground Squirrels in North Dakota

Richardson's ground squirrels are found only east of the Missouri River in North Dakota. Portions of Mclean, McHenry, Pierce, Eddy, and Foster counties are key areas for this species because of their larger tracts of intact prairie.

PROBLEMS WHICH MAY AFFECT THIS SPECIES

Habitat

Conversion of native prairie and rangeland to agricultural lands is the leading threat to the Richardson's ground squirrel.

Other Natural or Manmade Factors

- Poisoning to control and eradicate colonies is prevalent.
- Recreational shooting of Richardson's ground squirrels may effect populations.
- Colonial mammals are susceptible to plague, although no documented cases are known in North Dakota.

RESEARCH AND SURVEY EFFORTS

Current Research and Survey Efforts

- The first year of a distribution study has been completed by the Northern Prairie Wildlife Research Center.

Richardson's Ground Squirrel

Level II

Previous Research and Survey Efforts

- The U.S. Forest Service mapped Richardson's ground squirrel colonies on the Sheyenne National Grasslands in 2002.
- A reproduction study was conducted by the University of North Dakota in 1975.

Additional Research and Survey Efforts Needed

- No additional surveys needs have been identified.
- Develop monitoring protocol for this species.
- Colonies will be mapped by the USFS on the Sheyenne Grasslands in 2005-06.

MANAGEMENT RECOMMENDATIONS

Direct Loss of Habitat

- Protect native prairie where possible.
- Work with city planners to conserve existing native prairie.

Habitat Fragmentation

- Consider removal of dilapidated shelterbelts or stands of trees within grassland, particularly within 50 meters of grassland patches >100 ha.

Habitat Degradation

- Implement grazing systems to benefit grassland species.
- Work cooperatively with state and federal agencies to develop BMP's that promote use of fire.

Invasive and Noxious Species

- Control noxious weeds through biological and chemical methods.
- Use fire or other tools to prevent woody invasion of grassland.

Pesticides

- Work with state and federal agencies to enforce existing pesticide regulations.

Industrial Development

- Coordinate with wind energy companies to minimize impacts.

Data Gaps

- Survey areas of data gaps. Conduct research/surveys to establish baseline information on SoCP.

MONITORING PLANS

- Use monitoring protocol developed by ongoing SWG distribution study.

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Richardson's Ground Squirrel

Level II

Sovada, M.A. and R. Seabloom. 2005. Wild Mammals of North Dakota. Report to North Dakota Game and Fish Dept. Bismarck. 324 pp.

Wilson, Don E., and Sue Ruff. 1999. *The Smithsonian Book of North American Mammals*. Smithsonian Institution Press. Washington and London. 750 pp.

Gray Wolf

Level III

Scientific Name: *Canis lupis*

General Description: The gray wolf, also called the Eastern timber wolf, is the largest undomesticated member of the canid family, with males weighing 57 - 102 lbs and females, 46 - 75 lbs. Fur coloration generally is gray, with a lighter underside, but can vary from pure white to jet black.

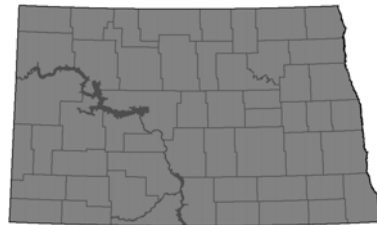
Status: Occasional sighting.

Abundance: Rare.

Primary Habitat: Wolves occupy a wide range of habitats where large ungulates, including elk, white-tailed deer, mule deer or moose are found. In Midwestern states, habitats currently used by wolves range from mixed hardwood-coniferous forests in wilderness and sparsely settled areas, to forest and prairie landscapes dominated by agricultural and pasture lands. Home range sizes of wolves vary, depending on prey density and pack size. In Minnesota, winter home ranges of wolves averaged 30-59 square miles.

Federal Status: Endangered.

Reason for Designation: Wolves historically occurred throughout the Midwest, including all of North Dakota. Once viewed as a menace, the species was eradicated from the plains in the early 1900s. By the 1950s, wolves were only found in the most remote habitats in northern Minnesota and Michigan, and on Isle Royale. Since receiving protection in 1974 under the Endangered Species Act, wolves have expanded their range in these states and farther, into Wisconsin. Additionally, individual animals of both sexes have been documented in North and South Dakota, although there are no known breeding populations in these states.



Historic Range

LOCATIONS AND CONDITIONS OF KEY HABITAT

Preferred Habitat

Initial research on wolves suggested the animals required large tracts of remote wilderness habitat with low road densities to survive. However, as the federally protected animals expanded their range, new data indicate wolves are more adaptable than originally believed. Where major prey species are present, wolves now can be found in open habitats and in areas with relatively high road densities.

Key Areas for Gray Wolves in North Dakota

No known breeding populations of wolves exist in North Dakota. However, breeding populations occur in the adjacent states of Minnesota and Montana, and in the Canadian Province of Manitoba. The nearest wolf packs to North Dakota are found in northwestern Minnesota, approximately 17 mi from the northeastern border of North Dakota. Other wolf packs occur 40 to 100 miles north of the state, in southern Manitoba. In recent years, wolf sightings in North Dakota have increased. Most of these wolves are believed to be young males seeking a mate and suitable habitat to establish a territory. Skull morphology and genetic studies conducted on nine wolves killed in the Dakotas indicate that eight likely dispersed from Minnesota and the ninth probably came from Manitoba. Because wolves are capable of

Gray Wolf

Level III

traveling long distances (ranging 1 to 45 miles per day), habitat throughout North Dakota is likely important for dispersing and colonizing individuals. Dispersing wolves are important for maintaining gene flow among populations and establishing new packs.

PROBLEMS WHICH MAY AFFECT THIS SPECIES

Habitat

According to Licht and Fritts (1994), wolves could recolonize portions of their former range on the prairie in the Dakotas. However, the agricultural dominated landscape (cropland, hayland and pasture) and relatively high densities of roads would facilitate negative encounters between wolves and humans, which could preclude their re-establishment.

Other natural or manmade factors

The greatest hindrance to recolonization of wolves in North Dakota is their vulnerability to killing by humans. For example, the major documented threat to wolves in the Dakotas was killing by humans due to allegedly mistaken identity as coyotes. Licht and Fritts (1990) noted that relatively high road densities in eastern North Dakota would increase the likelihood of wolf-vehicle collisions. Furthermore, human tolerance for wolves likely would be low because livestock production is a major industry in North Dakota.

RESEARCH AND SURVEY EFFORTS

Current Research and Survey Efforts

- Currently, no research is being conducted on the gray wolf in North Dakota.
- Sightings of wolves in the state are investigated, but no formal surveys are being conducted.

Previous Research and Survey Efforts

- The U.S. Fish and Wildlife Service conducted status reports for wolves in the United States.
- The U.S. Fish and Wildlife Service developed a recovery plan for the three distinct wolf populations in 1990.
- Licht and Fritts (1994) documented the occurrence of wolves in North and South Dakota and explored the potential for recolonization of the region.

Additional Research and Survey Efforts Needed

- No new research has been identified at this time.

MANAGEMENT RECOMMENDATIONS

- North Dakota is recognized by the U.S. Fish and Wildlife Service as lacking sufficient potential for restoration of the gray wolf. Neither the Fish and Wildlife Service's Eastern Recovery Plan nor the Northern Rockies Plan includes North Dakota on the list of possible locations for restoration of gray wolf populations. The Service has determined that lethal control of wolves depredating domesticated animals in North Dakota will not adversely affect the Eastern gray wolf recovery program. As a result, procedures have been established to allow for the control of wolves where livestock depredation has been documented.

MONITORING PLANS

The population will be monitored using an incidental reporting system, and through cooperation with the U.S. Fish and Wildlife Service and U.S. Department of Agriculture Wildlife Services Program.

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Swift Fox

Level II

Scientific Name: *Vulpes velox*

General Description: Smallest member of the canine family. 2 ½ feet from snout to tip of tail. Yellowish tan coat with some gray along the back. Belly, throat, and chest are buff to white. Distinctly large ears for body size. Long bushy tail with a black tip.

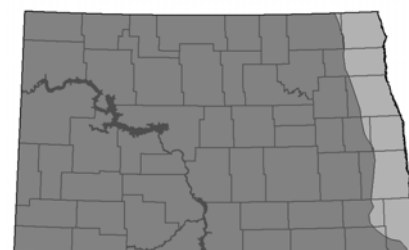
Status: Believed extirpated.

Abundance: Rare.

Primary Habitat: Large tracts of short and mixed-grass prairie.

Federal Status: No federal status.

Reason for Designation: Once common statewide, the swift fox now is presumed extirpated. A combination of loss of native prairie and poisoning efforts aimed at wolves and coyotes are thought to be the cause of the population decline.



Historic Range

LOCATIONS AND CONDITIONS OF KEY HABITAT

Preferred Habitat

Found statewide at one time with the exception of the eastern tallgrass prairies. A majority of swift foxes were found in the shortgrass prairies of southwestern North Dakota. Swift foxes prefer large tracts of native prairie, usually grazed, but will select dens sites near agricultural fields and human development.

Key Areas for Swift Fox in North Dakota

Shortgrass prairie in extreme western and southwestern North Dakota offers the most suitable habitat for swift fox populations in North Dakota. This region is also the closest in proximity to breeding populations in South Dakota and Montana.

PROBLEMS WHICH MAY AFFECT THIS SPECIES

Habitat

Swift fox were extirpated from much of their historic range due to indiscriminant poisoning in the early 1900s. Recently, loss of suitable native short and mixed-grass prairie due to conversion to agricultural and development threaten populations.

Other Natural or Manmade Factors

This species is vulnerable to over-trapping and poisoning. High red fox and coyote populations threaten swift fox populations due to predation. Distance to breeding populations in South Dakota and Montana is a threat to natural repopulation of suitable habitat in North Dakota.

Swift Fox

Level II

RESEARCH AND SURVEY EFFORTS

Current Research and Survey Efforts

- The North Dakota Game and Fish Department currently conducts population surveys for swift fox every three years in southwestern North Dakota.
-

Previous Research and Survey Efforts

- A diet study was performed in Montana on a reintroduced population.
- Prey density studies have been conducted throughout the swift fox range with SD, MT, and SK being the closest to North Dakota.
- Denning site selections have been studied in southwestern South Dakota.
- Reintroductions have occurred in parts of Montana, South Dakota and Saskatchewan.

Additional Research and Survey Efforts Needed

- Determine presence of swift fox in North Dakota
- Identify existing native shortgrass/mixed-grass prairie ecosystem and other suitable swift fox habitats.
- Feasibility of reintroduction of swift fox into North Dakota.

MANAGEMENT RECOMMENDATIONS

- Promote habitat conservation and habitat management in suitable swift fox habitat.
- Coordinate with federal and state agencies to evaluate current levels of protection of habitat.
- Identify habitat corridors and surrounding areas between habitat blocks for protection.
- Monitor existing and identify new threats to swift fox population expansion.
- Promote scientific swift fox management and a public education program.

MONITORING PLANS

- The North Dakota Game and Fish Department currently surveys parts of southwestern North Dakota to determine presence/absence of swift fox. Expansion of this effort is being developed to include more of the western edge of North Dakota.

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Swift Fox

Level II

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River Otter

Level II

Scientific Name: *Lontra canadensis*

General Description: The river otter is a large, semi-aquatic member of the weasel family weighing from 9 - 41 pounds. Total body length of adult otters ranges from 35 - 54 inches, with long muscular tails accounting for 35 to 40% of the total length. Fur coloration usually is dark brown on the back with a lighter belly and throat. Otters are good swimmers, having a long streamlined body, short powerful legs and webbed feet.



Status: Year-round resident.

Abundance: Rare.

Primary Habitat: River otters are found in a variety of aquatic habitats, including rivers, streams, backwater sloughs, wetlands, lakes and ponds. Key factors that determine habitat use include food availability (primarily fish and crustaceans), year-round water supplies and adequate cover.



Historic Range

Federal Status: No federal status.

Reason for Designation: Historically, river otters occurred in aquatic habitats throughout North Dakota. A combination of unregulated trapping, loss of wetlands and riparian habitat and susceptibility to pollutants resulted in the near-extirpation of otters from the state. In recent years, the number of otter sightings has increased, according to the NDGFD. However, it is not known if otters have re-colonized their former range or if a viable population exists in North Dakota.

LOCATIONS AND CONDITIONS OF KEY HABITAT

Preferred Habitat

In Midwestern states, landscapes that characterize high-quality river otter habitat include a relatively high number of wetlands and high percentage of woodland or riparian habitat within about 300 yards of a river or stream. Otters often are found in aquatic habitats associated with beaver activity and in shallow pools or below small dams where fish are concentrated. Habitats that retain open water in winter are important to otters for acquiring food. Otters den in riparian vegetation, undercut banks, abandoned beaver bank dens and lodges, rock cavities, log jams, and tree root structures.

Key Areas for River Otter in North Dakota

The Missouri and Red Rivers could be important waterways for expansion of river otters in North Dakota from populations in adjacent states. Since 1964, otter sightings (including visual observations, incidental trappings and road-killed animals) have increased, and most sightings have occurred along the Red River, tributaries draining into the Red River, and in Lake Sakakawea on the Missouri River System. Historically, otters were known to occur in the Missouri, Little Missouri, Yellowstone, Red, Park, Pembina, Salt, Turtle, Sheyenne and Heart rivers, and in Devils Lake.

River Otter

Level II

PROBLEMS WHICH MAY AFFECT THIS SPECIES

Habitat

The greatest threat to river otters is destruction or modification of riparian habitat for the purposes of economic or housing developments, recreation, or for conversion to cropland.

Other Natural or Manmade Factors

Aquatic habitats where river otters have been sighted and other water bodies throughout North Dakota have documented pollution issues (i.e., dissolved oxygen, sediment, nutrient and heavy metal levels) that could impact survival of otters by reducing prey availability or impairing reproduction.

River otters are susceptible to human-caused mortality, including incidental trapping and collisions with vehicles. In 2004, five of six reported otters were human-caused mortalities.

RESEARCH AND SURVEY EFFORTS

Current Research and Survey Efforts

- Currently there is no research targeting river otters within the state.

Previous Research and Survey Efforts

- Sightings are recorded by NDGFD staff. Necropsies are performed on incidental catches or vehicle-hit otters.

Additional Research and Survey Efforts Needed

- A survey to assess the current population of river otters in North Dakota is needed.

MANAGEMENT RECOMMENDATIONS

Direct Loss of Habitat

- Protect rivers, streams, and riparian areas where possible (i.e. easements and/or acquisition).
- Work with partners to ensure Swampbuster provisions are maintained.
- Continue to use the Section 404 program to ensure affected rivers and riparian areas are mitigated to replace form and function.
- Continue to work with other federal agencies (i.e. FAA and FHWA) not covered by Section 404 or Swampbuster to ensure affected rivers and riparian areas are mitigated to replace form and function.
- Continue to work with NDSWC to develop minimum in-stream flow recommendations.
- Work with partners to implement easements (i.e. EWP, WRP, and ACOE Sluffing or Flood Control Easements).
- Develop and promote incentive programs to restore riparian areas
- Work with partners to implement easements (i.e. EWP and WRP).
- Work with partners to implement easements
- Work with county zoning planning officials to designate areas in need of protective covenants

Habitat Degradation

- Develop and promote incentive programs to enhance or restore riparian areas.
- Continue to work with ND 319 Task Force in prioritizing projects within impaired watersheds and implementing BMP's.
- Work to modify dam operation regimes.
- Develop and promote incentive programs for adjacent landowners to improve bank stability through land use changes (e.g. RRBRP
- Promote non-traditional bank stabilization measures (i.e. root wads, willow waddles, vegetative slope)

River Otter

Level II

Other Problems

- Work with the dam owners for potential removal or modification.
- Control noxious weeds through biological and chemical methods.
- Cooperate with Fisheries Division on state aquatic nuisance species plan.

Data Gaps

- Survey areas of data gaps. Conduct research/surveys to establish baseline information on SoCP.

Conservation Awareness

- Continue to work with partners in promoting and distributing educational materials related to river, stream and riparian values and good stewardship.

MONITORING PLANS

- No monitoring plan currently exists for river otters in North Dakota.
- The NDGFD incidental reporting system could be used in conjunction with a standardized survey or monitoring system.

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Black-footed Ferret

Level I

Scientific Name: *Mustela nigripes*

General Description: A mink-sized member of the weasel family, up to 26 in. in length. Pelage is buff with the throat and belly generally whiter. The feet are black, as is the tip of the tail. A black band covers the eyes, and is more prominent in younger individuals.

Status: Extirpated.

Abundance: Rare.

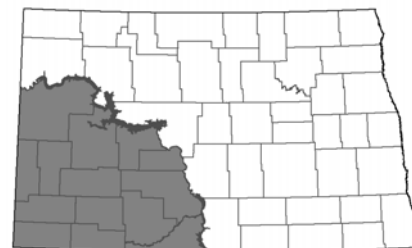
Primary Habitat: Associated exclusively with prairie dog towns. Use burrows for shelter and feeds on prairie dogs and other species that live within the town.

Federal Status: Endangered.

Reason for Designation: Extirpated from North Dakota in the early 1950s. Records of sightings continued until the 1970s. Poisoning efforts directed toward the black-tailed prairie dog in the early part of the century caused the decline and eventual loss of North Dakota's ferret population.



USFWS



Historic Range

LOCATIONS AND CONDITIONS OF KEY HABITAT

Preferred Habitat

Black-footed ferrets require large complexes of prairie dog colonies, 10,000 acres or more with towns no farther than three miles apart to sustain a viable population of 120 ferrets.

Key Areas for Black-footed Ferrets in North Dakota

Currently there are no black-tailed prairie dog complexes in North Dakota that fit the acreage requirements for a viable ferret population. The Little Missouri National Grasslands and also the Standing Rock reservation may be suitable areas if black-tailed prairie dog populations were to expand.

PROBLEMS WHICH MAY AFFECT THIS SPECIES

Habitat

Large prairie dog complexes needed to support a black-footed ferret population do not currently exist in North Dakota. With widespread negative sentiment toward prairie dogs within the state it is uncertain whether prairie dog complexes would be allowed to expand sufficiently to support ferret reintroduction.

Other Natural or Manmade Factors

Conversion of rangeland for agricultural uses is decreasing black-tailed prairie dog acres within the state, which in turn reduces potential black-footed ferret habitat.

RESEARCH AND SURVEY EFFORTS

Current Research and Survey Efforts

- Currently no black-footed ferret research is being conducted within the state.

Previous Research and Survey Efforts

- A biological survey of the state's fauna was preformed by Bailey.

Black-footed Ferret

Level I

- A status report of the black-footed ferret and the black-tailed prairie dog was conducted by Grondahl.

Additional Research and Survey Efforts Needed

- Potential sites for black-tailed prairie dog expansion need to be identified before ferret reintroduction can be considered.

MANAGEMENT RECOMMENDATIONS

- Management recommendations for the recovery of the Black-footed ferret are outlined in the Black-footed Ferret Recovery Plan. http://ecos.fws.gov/docs/recovery_plans/1988/880808.pdf Currently there are no areas of North Dakota that are suitable for black-footed ferret reintroduction. Black-tailed prairie dog towns will continue to be surveyed for ferrets.

MONITORING PLANS

- Prairie dog towns will be monitored for black-footed ferrets during black-tailed prairie dog survey efforts.

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Black-footed Ferret

Level I

Wilson, Don E., and Sue Ruff. 1999. *The Smithsonian Book of North American Mammals*. Smithsonian Institution Press. Washington and London. 750 pp.

Eastern Spotted Skunk

Level III

Scientific Name: *Spilogale putorius*

General Description: Roughly the size of a small house cat, it is distinguishable from the more common striped skunk by six white spots running the length of its back, and a small white spot between its eyes. It also has an all black tail with a white tip. Nocturnal and highly secretive.

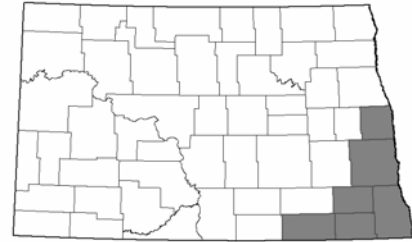
Status: Year-round resident.

Abundance: Rare.

Primary Habitat: Found in riparian areas and vegetated fence lines along agricultural fields. Den in dark, dry burrows dug themselves or by other mammals. May also den in haystacks, rock piles or abandoned buildings.

Federal Status: None.

Reason for Designation: Little is known regarding the habitats of this secretive species. Riparian habitat it uses is threatened by agricultural practices and overgrazing. This species is likely on the edge of its range in North Dakota.



LOCATIONS AND CONDITIONS OF KEY HABITAT

Preferred Habitat

In prairie habitats this species can be found in wooded riparian areas or vegetation and fence rows along agricultural fields. Found hunting small mammals, reptiles, and amphibians at night in crop fields.

Key Areas for Eastern Spotted Skunks in North Dakota

No specific focus areas have been identified. Its distribution is unclear for North Dakota, but most likely found in southeastern counties.

PROBLEMS WHICH MAY AFFECT THIS SPECIES

Habitat

Loss of riparian areas is a major concern for Eastern spotted skunk. It uses these areas to hunt, and also dens in logs and brush piles.

Other Natural or Manmade Factors

In other parts of its range, automobile collisions and poisoning are known threats to this species.

RESEARCH AND SURVEY EFFORTS

Current Research and Survey Efforts

- There is currently no research being conducted on this species within the state.

Previous Research and Survey Efforts

- No survey efforts targeting the Eastern spotted skunk have been identified.

Eastern Spotted Skunk

Level III

Additional Research and Survey Efforts Needed

- Develop a protocol to monitor the Eastern spotted skunk in the state.
- Develop research to define ecology, resource needs, and population dynamics of this species in the state.

MANAGEMENT RECOMMENDATIONS

Direct Loss of Habitat

- Protect rivers, streams, and riparian areas where possible (i.e. easements and/or acquisition).
- Continue to use the Section 404 program to ensure affected rivers and riparian areas are mitigated to replace form and function.
- Continue to work with other federal agencies (i.e. FAA and FHWA) not covered by Section 404 or Swampbuster to ensure affected rivers and riparian areas are mitigated to replace form and function.
- Work with partners to implement easements (i.e. EWP, WRP, and ACOE Sluffing or Flood Control Easements).
- Develop and promote incentive programs to restore riparian areas
- Work with partners to implement easements (i.e. EWP and WRP).
- Work with county zoning planning officials to designate areas in need of protective covenants

Habitat Degradation

- Develop and promote incentive programs to enhance or restore riparian areas.
- Continue to work with ND 319 Task Force in prioritizing projects within impaired watersheds and implementing BMP's.
- Control noxious weeds through biological and chemical methods.

Data Gaps

- Survey areas of data gaps. Conduct research/surveys to establish baseline information on SoCP.

Conservation Awareness

- Continue to work with partners in promoting and distributing educational materials related to river, stream and riparian values and good stewardship.

MONITORING PLANS

- No monitoring plan has been developed for this species.

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Eastern Spotted Skunk

Level III

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